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TECH CENTER 1600/2900



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#27  
JW  
11/20/02

## RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/461,580C

DATE: 11/21/2002

TIME: 10:29:34

Input Set : A:\13407-016001.txt

Output Set: N:\CRF4\11212002\I461580C.raw

4 <110> APPLICANT: Guarente, Leonard  
 5 Imai, Shin-ichiro  
 6 Armstrong, Christopher  
 8 <120> TITLE OF INVENTION: METHODS FOR IDENTIFYING AGENTS WHICH ALTER HISTINE  
 9 PROTEIN ACETYLATION, DECREASE AGING, INCREASE LIFESPAN  
 11 <130> FILE REFERENCE: 13407-016001  
 13 <140> CURRENT APPLICATION NUMBER: 09/461,580C  
 14 <141> CURRENT FILING DATE: 1999-12-15  
 16 <160> NUMBER OF SEQ ID NOS: 38  
 18 <170> SOFTWARE: FastSEQ for Windows Version 4.0  
 20 <210> SEQ ID NO: 1  
 21 <211> LENGTH: 737  
 22 <212> TYPE: PRT  
 23 <213> ORGANISM: Mus musculus  
 25 <400> SEQUENCE: 1  
 26 Met Ala Asp Glu Val Ala Leu Ala Leu Gln Ala Ala Gly Ser Pro Ser  
 27 1 5 10 15  
 28 Ala Ala Ala Ala Met Glu Ala Ala Ser Gln Pro Ala Asp Glu Pro Leu  
 29 20 25 30  
 30 Arg Lys Arg Pro Arg Arg Asp Gly Pro Gly Leu Gly Arg Ser Pro Gly  
 31 35 40 45  
 32 Glu Pro Ser Ala Ala Val Ala Pro Ala Ala Gly Cys Glu Ala Ala  
 33 50 55 60  
 34 Ser Ala Ala Ala Pro Ala Ala Leu Trp Arg Glu Ala Ala Gly Ala Ala  
 35 65 70 75 80  
 36 Ala Ser Ala Glu Arg Glu Ala Pro Ala Thr Ala Val Ala Gly Asp Gly  
 37 85 90 95  
 38 Asp Asn Gly Ser Gly Leu Arg Arg Glu Pro Arg Ala Ala Asp Asp Phe  
 39 100 105 110  
 40 Asp Asp Asp Glu Gly Glu Glu Asp Glu Ala Ala Ala Ala Ala Ala  
 41 115 120 125  
 42 Ala Ala Ala Ile Gly Tyr Arg Asp Asn Leu Leu Leu Thr Asp Gly Leu  
 43 130 135 140  
 44 Leu Thr Asn Gly Phe His Ser Cys Glu Ser Asp Asp Asp Arg Thr  
 45 145 150 155 160  
 46 Ser His Ala Ser Ser Ser Asp Trp Thr Pro Arg Pro Arg Ile Gly Pro  
 47 165 170 175  
 48 Tyr Thr Phe Val Gln Gln His Leu Met Ile Gly Thr Asp Pro Arg Thr  
 49 180 185 190  
 50 Ile Leu Lys Asp Leu Leu Pro Glu Thr Ile Pro Pro Pro Glu Leu Asp  
 51 195 200 205  
 52 Asp Met Thr Leu Trp Gln Ile Val Ile Asn Ile Leu Ser Glu Pro Pro  
 53 210 215 220

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54 Lys Arg Lys Lys Arg Lys Asp Ile Asn Thr Ile Glu Asp Ala Val Lys  
 55 225 230 235 240  
 56 Leu Leu Gln Glu Cys Lys Lys Ile Ile Val Leu Thr Gly Ala Gly Val  
 57 245 250 255  
 58 Ser Val Ser Cys Gly Ile Pro Asp Phe Arg Ser Arg Asp Gly Ile Tyr  
 59 260 265 270  
 60 Ala Arg Leu Ala Val Asp Phe Pro Asp Leu Pro Asp Pro Gin Ala Met  
 61 275 280 285  
 62 Phe Asp Ile Glu Tyr Phe Arg Lys Asp Pro Arg Pro Phe Phe Lys Phe  
 63 290 295 300  
 64 Ala Lys Glu Ile Tyr Pro Gly Gln Phe Gln Pro Ser Leu Cys His Lys  
 65 305 310 315 320  
 66 Phe Ile Ala Leu Ser Asp Lys Glu Gly Lys Leu Leu Arg Asn Tyr Thr  
 67 325 330 335  
 68 Gln Asn Ile Asp Thr Leu Glu Gln Val Ala Gly Ile Gln Arg Ile Leu  
 69 340 345 350  
 70 Gln Cys His Gly Ser Phe Ala Thr Ala Ser Cys Leu Ile Cys Lys Tyr  
 71 355 360 365  
 72 Lys Val Asp Cys Glu Ala Val Arg Gly Asp Ile Phe Asn Gln Val Val  
 73 370 375 380  
 74 Pro Arg Cys Pro Arg Cys Pro Ala Asp Glu Pro Leu Ala Ile Met Lys  
 75 385 390 395 400  
 76 Pro Glu Ile Val Phe Phe Gly Glu Asn Leu Pro Glu Gln Phe His Arg  
 77 405 410 415  
 78 Ala Met Lys Tyr Asp Lys Asp Glu Val Asp Leu Leu Ile Val Ile Gly  
 79 420 425 430  
 80 Ser Ser Leu Lys Val Arg Pro Val Ala Leu Ile Pro Ser Ser Ile Pro  
 81 435 440 445  
 82 His Glu Val Pro Gln Ile Leu Ile Asn Arg Glu Pro Leu Pro His Leu  
 83 450 455 460  
 84 His Phe Asp Val Glu Leu Leu Gly Asp Cys Asp Val Ile Ile Asn Glu  
 85 465 470 475 480  
 86 Leu Cys His Arg Leu Gly Gly Glu Tyr Ala Lys Leu Cys Cys Asn Pro  
 87 485 490 495  
 88 Val Lys Leu Ser Glu Ile Thr Glu Lys Pro Pro Arg Pro Gln Lys Glu  
 89 500 505 510  
 90 Leu Val His Leu Ser Glu Leu Pro Pro Thr Pro Leu His Ile Ser Glu  
 91 515 520 525  
 92 Asp Ser Ser Ser Pro Glu Arg Thr Val Pro Gln Asp Ser Ser Val Ile  
 93 530 535 540  
 94 Ala Thr Leu Val Asp Gln Ala Thr Asn Asn Asn Val Asn Asp Leu Glu  
 95 545 550 555 560  
 96 Val Ser Glu Ser Ser Cys Val Glu Glu Lys Pro Gln Glu Val Gln Thr  
 97 565 570 575  
 98 Ser Arg Asn Val Glu Asn Ile Asn Val Glu Asn Pro Asp Phe Lys Ala  
 99 580 585 590  
 100 Val Gly Ser Ser Thr Ala Asp Lys Asn Glu Arg Thr Ser Val Ala Glu  
 101 595 600 605  
 102 Thr Val Arg Lys Cys Trp Pro Asn Arg Leu Ala Lys Glu Gln Ile Ser

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**Input Set : A:\13407-016001.txt**  
**Output Set: N:\CRF4\11212002\I461580C.raw**

103	610	615	620
104	Lys Arg Leu Glu Gly Asn Gln Tyr Leu Phe Val Pro Pro Asn Arg Tyr		
105	625	630	635
106	Ile Phe His Gly Ala Glu Val Tyr Ser Asp Ser Glu Asp Asp Val Leu		640
107	645	650	655
108	Ser Ser Ser Cys Gly Ser Asn Ser Asp Ser Gly Thr Cys Gln Ser		
109	660	665	670
110	Pro Ser Leu Glu Glu Pro Leu Glu Asp Glu Ser Glu Ile Glu Glu Phe		
111	675	680	685
112	Tyr Asn Gly Leu Glu Asp Asp Thr Glu Arg Pro Glu Cys Ala Gly Gly		
113	690	695	700
114	Ser Gly Phe Gly Ala Asp Gly Asp Gln Glu Val Val Asn Glu Ala		
115	705	710	715
116	Ile Ala Thr Arg Gln Glu Leu Thr Asp Val Asn Tyr Pro Ser Asp Lys		720
117	725	730	735
118	Ser		
121	<210> SEQ ID NO: 2		
122	<211> LENGTH: 272		
123	<212> TYPE: PRT		
124	<213> ORGANISM: Saccharomyces cerevisiae		
126	<400> SEQUENCE: 2		
127	Ile Asn Lys Val Leu Cys Thr Arg Leu Arg Leu Ser Asn Phe Phe Thr		
128	1	5	10
			15
129	Ile Asp His Phe Ile Gln Lys Leu His Thr Ala Arg Lys Ile Leu Val		
130	20	25	30
131	Leu Thr Gly Ala Gly Val Ser Thr Ser Leu Gly Ile Pro Asp Phe Arg		
132	35	40	45
133	Ser Ser Glu Gly Phe Tyr Ser Lys Ile Lys His Leu Gly Leu Asp Asp		
134	50	55	60
135	Pro Gln Asp Val Phe Asn Tyr Asn Ile Phe Met His Asp Pro Ser Val		
136	65	70	75
			80
137	Phe Tyr Asn Ile Ala Asn Met Val Leu Pro Pro Glu Lys Ile Tyr Ser		
138	85	90	95
139	Pro Leu His Ser Phe Ile Lys Met Leu Gln Met Lys Gly Lys Leu Leu		
140	100	105	110
141	Arg Asn Tyr Thr Gln Asn Ile Asp Asn Leu Glu Ser Tyr Ala Gly Ile		
142	115	120	125
143	Ser Thr Asp Lys Leu Val Gln Cys His Gly Ser Phe Ala Thr Ala Thr		
144	130	135	140
145	Cys Val Thr Cys His Trp Asn Leu Pro Gly Glu Arg Ile Phe Asn Lys		
146	145	150	155
			160
147	Ile Arg Asn Leu Glu Leu Pro Leu Cys Pro Tyr Cys Tyr Lys Lys Arg		
148	165	170	175
149	Arg Glu Tyr Phe Pro Glu Gly Tyr Asn Asn Lys Val Gly Val Ala Ala		
150	180	185	190
151	Ser Gln Gly Ser Met Ser Glu Arg Pro Pro Tyr Ile Leu Asn Ser Tyr		
152	195	200	205
153	Gly Val Leu Lys Pro Asp Ile Thr Phe Phe Gly Glu Ala Leu Pro Asn		
154	210	215	220

**RAW SEQUENCE LISTING**  
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**Output Set: N:\CRF4\11212002\I461580C.raw**

```

155 Lys Phe His Lys Ser Ile Arg Glu Asp Ile Leu Glu Cys Asp Leu Leu
156 225           230           235           240
157 Ile Cys Ile Gly Thr Ser Leu Lys Val Ala Pro Val Ser Glu Ile Val
158           245           250           255
159 Asn Met Val Pro Ser His Val Pro Gln Val Leu Ile Asn Arg Asp Pro
160           260           265           270
162 <210> SEQ ID NO: 3
163 <211> LENGTH: 267
164 <212> TYPE: PRT
165 <213> ORGANISM: Saccharomyces cerevisiae
167 <400> SEQUENCE: 3
168 Ile Asn Lys Val Leu Ser Thr Arg Leu Arg Leu Pro Asn Phe Asn Thr
169 1           5           10           15
170 Ile Asp His Phe Thr Ala Thr Leu Arg Asn Ala Lys Lys Ile Leu Val
171           20           25           30
172 Leu Thr Gly Ala Gly Val Ser Thr Ser Leu Gly Ile Pro Asp Phe Arg
173           35           40           45
174 Ser Ser Glu Gly Phe Tyr Ser Lys Ile Arg His Leu Gly Leu Glu Asp
175           50           55           60
176 Pro Gln Asp Val Phe Asn Leu Asp Ile Phe Leu Gln Asp Pro Ser Val
177 65           70           75           80
178 Phe Tyr Asn Ile Ala His Met Val Leu Pro Pro Glu Asn Met Tyr Ser
179           85           90           95
180 Pro Leu His Ser Phe Ile Lys Met Leu Gln Asp Lys Gly Lys Leu Leu
181           100          105          110
182 Arg Asn Tyr Thr Gln Asn Ile Asp Asn Leu Glu Ser Tyr Ala Gly Ile
183           115          120          125
184 Asp Pro Asp Lys Leu Val Gln Cys His Gly Ser Phe Ala Thr Ala Ser
185           130          135          140
186 Cys Val Thr Cys His Trp Gln Ile Pro Gly Glu Lys Ile Phe Glu Asn
187 145           150          155          160
188 Ile Arg Asn Leu Glu Leu Pro Leu Cys Pro Tyr Cys Tyr Gln Lys Arg
189           165          170          175
190 Lys Gln Tyr Phe Pro Met Ser Asn Gly Asn Asn Thr Val Gln Thr Asn
191           180          185          190
192 Ile Asn Phe Asn Ser Pro Ile Leu Lys Ser Tyr Gly Val Leu Lys Pro
193           195          200          205
194 Asp Met Thr Phe Phe Gly Glu Ala Leu Pro Ser Arg Phe His Lys Thr
195           210          215          220
196 Ile Arg Lys Asp Ile Leu Glu Cys Asp Leu Leu Ile Cys Ile Gly Thr
197 225           230          235          240
198 Ser Leu Lys Val Ala Pro Val Ser Glu Ile Val Asn Met Val Pro Ser
199           245          250          255
200 His Val Pro Gln Ile Leu Ile Asn Arg Asp Met
201           260          265
203 <210> SEQ ID NO: 4
204 <211> LENGTH: 245
205 <212> TYPE: PRT
206 <213> ORGANISM: Mus musculus

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**RAW SEQUENCE LISTING**  
**PATENT APPLICATION: US/09/461,580C**

**DATE: 11/21/2002**  
**TIME: 10:29:34**

**Input Set : A:\13407-016001.txt**  
**Output Set: N:\CRF4\11212002\I461580C.raw**

208 <400> SEQUENCE: 4  
209 Val Ile Asn Ile Leu Ser Glu Pro Pro Lys Arg Lys Lys Arg Lys Asp  
210 1 5 10 15  
211 Ile Asn Thr Ile Glu Asp Ala Val Lys Leu Leu Gln Glu Cys Lys Lys  
212 20 25 30  
213 Ile Ile Val Leu Thr Gly Ala Gly Val Ser Val Ser Cys Gly Ile Pro  
214 35 40 45  
215 Asp Phe Arg Ser Arg Asp Gly Ile Tyr Ala Arg Leu Ala Val Asp Phe  
216 50 55 60  
217 Pro Asp Leu Pro Asp Pro Gln Ala Met Phe Asp Ile Glu Tyr Phe Arg  
218 65 70 75 80  
219 Lys Asp Pro Arg Pro Phe Phe Lys Phe Ala Lys Glu Ile Tyr Pro Gly  
220 85 90 95  
221 Gln Phe Gln Pro Ser Leu Cys His Lys Phe Ile Ala Leu Ser Asp Lys  
222 100 105 110  
223 Glu Gly Lys Leu Leu Arg Asn Tyr Thr Gln Asn Ile Asp Thr Leu Glu  
224 115 120 125  
225 Gln Val Ala Gly Ile Gln Arg Ile Leu Gln Cys His Gly Ser Phe Ala  
226 130 135 140  
227 Thr Ala Ser Cys Leu Ile Cys Lys Tyr Lys Val Asp Cys Glu Ala Val  
228 145 150 155 160  
229 Arg Gly Asp Ile Phe Asn Gln Val Val Pro Arg Cys Pro Arg Cys Pro  
230 165 170 175  
231 Ala Asp Glu Pro Leu Ala Ile Met Lys Pro Glu Ile Val Phe Phe Gly  
232 180 185 190  
233 Glu Asn Leu Pro Glu Gln Phe His Arg Ala Met Lys Tyr Asp Lys Asp  
234 195 200 205  
235 Glu Val Asp Leu Leu Ile Val Ile Gly Ser Ser Leu Lys Val Arg Pro  
236 210 215 220  
237 Val Ala Leu Ile Pro Ser Ser Ile Pro His Glu Val Pro Gln Ile Leu  
238 225 230 235 240  
239 Ile Asn Arg Glu Pro  
240 245  
242 <210> SEQ ID NO: 5  
243 <211> LENGTH: 237  
244 <212> TYPE: PRT  
245 <213> ORGANISM: *Salmonella typhimurium*  
247 <400> SEQUENCE: 5  
248 Met Met Glu Asn Pro Arg Val Leu Val Leu Thr Gly Ala Gly Ile Ser  
249 1 5 10 15  
250 Ala Glu Ser Gly Ile Arg Thr Phe Arg Ala Ala Asp Gly Leu Trp Glu  
251 20 25 30  
252 Glu His Arg Val Glu Asp Val Ala Thr Pro Glu Gly Phe Ala Arg Asn  
253 35 40 45  
254 Pro Gly Leu Val Gln Thr Phe Tyr Asn Ala Arg Arg Gln Gln Leu Gln  
255 50 55 60  
256 Gln Pro Glu Ile Gln Pro Asn Ala Ala His Leu Ala Leu Asn Leu  
257 65 70 75 80  
258 Lys Lys Arg Leu Ala Ile Ala Phe Leu Leu Val Thr Gln Asn Ile Asp

RAW SEQUENCE LISTING ERROR SUMMARY                    DATE: 11/21/2002  
PATENT APPLICATION: US/09/461,580C                    TIME: 10:29:35

Input Set : A:\13407-016001.txt  
Output Set: N:\CRF4\11212002\I461580C.raw

Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:27; Xaa Pos. 8  
Seq#:38; Xaa Pos. 4,6,8